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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|---|---|---|---|---|
| 10/682,311 | 10/08/2003 | Karsten Laing | 027209-0901 | 7322 |

30542 7590 08/15/2007
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| EXAMINER |
|---|
| BERTHEAUD, PETER JOHN |

| ART UNIT | PAPER NUMBER |
|---|---|
| 3746 | |

| MAIL DATE | DELIVERY MODE |
|---|---|
| 08/15/2007 | PAPER |

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

| Office Action Summary | Application No. | Applicant(s) | |
|---|---|---|---|
| | 10/682,311 | LAING, KARSTEN | |
| | **Examiner** | **Art Unit** | |
| | Peter J. Bertheaud | 3746 | |

***-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --***

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

1)☒ Responsive to communication(s) filed on *10 July 2007*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

4)☒ Claim(s) *1-20 and 22* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-20 and 22* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

## Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *10 August 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

## DETAILED ACTION

1. This office action is in response to the Request for Continued Examination filed 7/10/2007. It is noted that claim 1 has been amended and claims 21 and 23-30 have been canceled.

### *Claim Rejections - 35 USC § 103*

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 1-5 and 15-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Edwards 2,368,530 in view of Laing 4,834,628.

Edwards discloses a rotary pump essentially as claimed, including for example, a rotatable impeller; and a degassing device, wherein the degassing device comprises a gas line (71,79) opening at a first end into an area on the impeller 24 and opening at a second end into an area with a lower pressure in relation to an interior pressure of the circulation pump or into a device generating underpressure (see page 4, col. 1 lines 1-2); wherein the first end of the gas line face a central area of the impeller; and wherein the impeller has a cavity 42, the first end of the gas line opening into the cavity 42. Edwards also discloses that the first end of the gas line opens into an area on the impeller where fluid eddies are able to form (see page 3, col.1, lines 33-40) and that the first end also opens into an area on the impeller where gas is able to accumulate 42 (see page 3, col.1, lines 58-65). Edwards further discloses that the gas line comprises a pipe that is aligned either essentially parallel or at an angle to the axis of rotation of the impeller at least in one section (71,79). However, Edwards fails to disclose the following claimed limitations taught by Laing.

Laing (Figs. 1 and 4) teaches a pump assembly defining intake and an outtake area (see top of Fig. 1), along with a rotatable rotor-impeller unit (4, 6, 7, 8). Laing further teaches that the impeller is arranged on a rotor 4 mounted in a spherical bearing. Laing also teaches that the impeller has bearings adapted to be lubricated by the fluid (see configuration of rotor-impeller unit Fig. 1 and 4).

Therefore, it would have been obvious to one skilled in the art at the time of invention to modify the impeller assembly of Edwards by using a spherical bearing that is adapted to be lubricated by the working fluid in order to transfer the tensile forces on the rotor annularly against the face of the rotor (Laing, col. 2, lines 13-16) and in order to eliminate the use of a second fluid for lubricating the bearings, thereby decreasing the operating cost of the pump.

4. Claims 6, 7, 8, and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Edwards 2,368,530 in view of Laing 4,834,628, and in further view of Savage 3,970,555.

Edwards in view of Laing discloses the invention as discussed above. However, Edwards in view of Laing does not teach the following claimed limitations taught by Savage.

Savage teaches a gas removal apparatus defining a pipe 23 for removing gases from deep-bed filters generated during the denitrification of treated waste-water as well as a valve 25 arranged at its second end. Savage further teaches that the valve can be closed either automatically or manually.

Therefore, it would have been obvious to one skilled in the art at the time of invention to modify the gas line pipe of Edwards in view of Laing by adding a valve in order to vent the gas at specific time intervals (Savage, col. 6, lines 20-38).

5. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Edwards 2,368,530 in view of Laing 4,834,628, in view of Savage 3,970,555, and in further view of Blomquist 4,905,863.

Edwards in view of Laing and in further view of Savage discloses the invention as discussed above. However, Edwards in view of Laing and in further view of Savage does not teach the following claimed limitations taught by Blomquist.

Blomquist teaches a vent assembly defining a screw 4 and a pair of barbs 25 on the end of a leg 26. Blomquist further teaches that the screw is used to close a container 2 holding gas.

Therefore, it would have been obvious to one skilled in the art at the time of invention to modify the gas line pipe and valve assembly of Edwards in view of Laing and in further view of Savage by using the screw vent assembly in order to selectively vent the gas, either by selectively choosing times at which to vent the gas or by deciding on an amount to continuously escape (Blomquist, col. 3, lines 54-58).

6. Claims 11 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Edwards 2,368,530 in view of Laing 4,834,628 and in further view of Savage 3,970,555, and in further view of Herron 4,163,456.

Edwards in view of Laing and in further view of Savage discloses the invention as discussed above. However, Edwards in view of Laing and in further view of Savage does not teach the following claimed limitations taught by Herron.

Herron teaches a valve assembly defining a float 13 arranged in a receiving chamber 11. Herron further teaches that this valve is attached to the end of a gas line (see col. 1, lines 5-11).

Therefore, it would have been obvious to one skilled in the art at the time of invention to modify the gas line pipe and valve assembly of Edwards in view of Laing and in further view of Savage by using the float valve in order to efficiently seal the valve when a pipeline is draining or in drained condition (Herron, col. 1, lines 41-47).

7. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Edwards 2,368,530 in view of Laing 4, 834,628 and in further view of Hickok 5,449,454.

Edwards in view of Laing discloses the invention as discussed above. However, Edwards in view of Laing does not teach the following claimed limitations taught by Hickok.

Hickok (Fig. 10) teaches a gas-expelling device defining a pump apparatus 40 including an impeller and housing 46 and a tube 170. Hickok further teaches that the tube is guided through an intake area (see area within 16a).

Therefore, it would have been obvious to one skilled in the art at the time of invention to modify the gas line pipe of Edwards in view of Laing by guiding the gas line through an intake area in order for both lines of fluid flow to share the same corridor, at least for a short length, so as to decrease the size and cost of the device (Hickok, col. 2, lines 8-10 and Fig. 10).

8. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Edwards 2,368,530 in view of Laing 4,834,628, and in further view of Edwards 2,422,956.

Edwards 530 in view of Laing discloses the invention as discussed above. However, Edwards in view of Laing does not teach the following claimed limitations taught by Edwards 956.

Edwards 956 teaches a rotary pump comprising a rotatable impeller 37 and a degassing device. Edwards further teaches a sealing gap 31 between the intake area S and the impeller 37.

Therefore, it would have been obvious to one skilled in the art at the time of invention to modify the gas line pipe and valve assembly of Edwards 530 in view of Laing by using the sealing gap in order to properly distribute the fluid to the impeller (Edwards 956, col. 4, lines 3-15).

9. Claim 22 is rejected under 35 U.S.C. 103(a) as being unpatentable over Edwards 2,368,530 in view of Laing 4,834,628, and in further view of Ruhl 4,205,947.

Edwards in view of Laing discloses the invention as discussed above. However, Edwards in view of Laing does not teach the following claimed limitations taught by Ruhl.

Ruhl teaches a fuel pump defining a gas ventilation pipe 58 as well as an intake 6 and an impeller 30. Ruhl further teaches that the first end of the ventilation pipe faces a side of the impeller allocated to the fuel intake side of the pump.

Therefore, it would have been obvious to one skilled in the art at the time of invention to modify the gas line pipe of Edwards in view of Laing by altering the position of the gas line pipe to face a side of the impeller allocated to the fuel intake side of the pump in order to keep the coast of production down and the design simple (Ruhl, col. 1, lines 25-33).

### *Response to Arguments*

10. Applicant's arguments filed 7/10/2007 have been fully considered but they are not persuasive.

11. In reference to claim 1: the Applicant argues that the first end of the gas line of Edwards does not face a central area of the impeller and does not open up into a cavity. However, the gas line does not simply consist of pipe 79, it comprises pipe 71 as well, all the way down to its first end 60, which does in fact face a central area of the impeller. Furthermore, a central area of the impeller may consist of any area of the impeller that is not on its outermost periphery. In reference to the cavity on the impeller: the impeller vanes create cavities 42 to which the first end of the gas line clearly opens up.

12. In response to the argument of motivation: the Applicant argues that the motivation to combine the Laing reference with Edwards is purely hindsight. The Examiner disagrees for the following reasons: using a bearing for a pump rotor that may be lubricated by the very fluid that is being pumped has many advantages, the most important being the elimination of a need for an additional lubricating fluid. This will decrease operating costs of the pump as well as eliminate the problem of having

lubricant mix with the working fluid. This is motivation enough for using the Laing bearing in the Edwards pump. Furthemore, just because there is no gas line in Laing does not mean the references cannot be combined. The gas line is shown in Edwards and Laing is purely used for its bearing structure. Therefore, the combination of references reads on the claims.

### ***Conclusion***

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Peter J. Bertheaud whose telephone number is (571) 272-3476. The examiner can normally be reached on M-F 9am - 5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Anthony Stashick can be reached on (571) 272-4561. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

PJB 8/7/07

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